Ultrasound Technologies Ltd

Fetatrack 360
Service Manual
Issue 1

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This booklet explains the operation and service of the FETATRACK 360 Intrapartuml Cardiotocograph. Care has been taken during the design and manufacture of this product so that it meets all of the current safety standards set down by IEC60601-1 .

If you require assistance understanding any part of this document, or have any questions relating to the operation of the FETATRACK 360 please contact:

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This service manual contains circuit descriptions, diagrams, parts and spares lists is available for the FETATRACK 360 that are correct at the time of printing. Due to continuous improvement certain sections may differ in newer units if you have any doubt please contact the address above.

To maintain the FETATRACK 360's performance it is recommended that it be included in a periodic maintenance programme.

Specification

Size: 350 x 370 x 140 mm
Weight: 8 kg
Voltage: 100-240 Volts AC 50/60 Hz
Safety: Complies with EN60101-1

ULTRASOUND
- Type: Continuous Doppler
- Operating Frequency: 2MHz±2% and 1.8MHz ±2%
- Power Output: 5 mW/sq cm max. SATA
- Signal Processing: Software AUTOCORRELATOR

DIRECT FECG (Intra models only)
- Signal Range: 40µV-5mV
- Input Noise: <1,4µV p-p
- CMRR: >125dB

ALARMS
- Low Level: 60 - 120 BPM, Adjustable in steps of 5 BPM
- High Level: 160 - 200 BPM, Adjustable in steps of 5 BPM

EXTERNAL UTERINE ACTIVITY
- Type: Flat faced Tocodynamometer
- Signal Range: 0 - 99 relative contractions strength

INTERNAL UTERINE ACTIVITY (Intra models only)
- Intrauterine Pressure: Type optional
- Signal Range: 0 - 99 mmHg

EVENT MARKER
- Hand held, person operated

PRINTER
- Type: Thermal Array 8 dots/mm
- Print Speed: 1,2 and 3 cm/min
- Paper Size: 145 mm x 15 mtr
- FHR Sensitivity: 20 or 30 BPM/cm
- UA Sensitivity: 30/cm
- IUP Sensitivity: 30mmHg/cm

DISPLAY/PRINTER RANGES
- FHR Range: 30 - 250 BPM
- FHR Accuracy: +/- 1 BPM
- UA Range: 0 - 99 units
- FspO2 Range: 0 – 100%

OXIMETER
- Oxygen Saturation (%FSpO2): 0% to 100%
- Pulse Rate Range: 30 to 300 bpm

Accuracy
- Blood Oxygen Saturation: For specification, see footnote “a”
- Pulse Rate: 30 to 300 bpm; ±3 bpm

Displays
- Graphical Displays: 3-digit
- Pulse Strength: Graphic Bargraph

Measurement Wavelengths and Output Power
- Red: 661 nanometers @ 3 mw nominal
- Infrared: 905 nanometers @ 3 mw nominal

“a”. Calibration of the FetalSAT System was accomplished through carefully controlled hypoxia studies in a laboratory animal model to establish the calibration coefficients. For specifications, see FetalSAT Specification Supplement (available upon request).

User Configuration

Firstly connect the *AC supply cord.*

Facilities are provided to allow the setting of the FETATRACK 360 to meet individual requirements. The functions which may be adjusted by the user are date, time and alarm settings, and these are all accessed from the set-up menu which may be accessed at power on.

Hold down the UA0 button whilst turning on the FETATRACK 360, to enter the calibration mode . The display will show Entering Calibration Mode ..... After a few seconds the display will show the menu options available. To step through the menu press UA0 repeatedly until the curser is over the option you wish to change. To alter any value, use the volume control keys to achieve the desired setting. You can move backwards on the screen by pressing the recorder button.

To exit the calibration mode use UA0 button to move the cursor to exit on the screen and pressUA0 again. This will restart the system and return to normal operating mode.

Special Precautions

Your FETATRACK 360 Antenatal Cardiotocograph has been designed for electrical safety. All the safety and operating instructions should be read before operating the FETATRACK 360. Failure to do so could result in injury to the user, patient or damage to the System and accessories.

Electrical Shock Hazard

Do not defeat the grounding integrity of this System. Protection against electrical shock, in the event of failure of basic insulation, is provided by the connection of the chassis to the safety ground. Safety grounding occurs only when the 3-wire cable and plug provided with the system are connected to a properly grounded receptacle.

Do not remove the System cover. The System should be serviced by trained and qualified personnel only. Contacting the hazardous voltages within the System could cause serious injury.

Do not use the System if the power cord has any cuts or openings.

Do not use the transducer if the cable has any cuts or openings.

Do not use the transducer if the transducer face is cracked or chipped.

Do not immerse the transducer cable connectors in any liquids. Electrical shock could result.

Should the electrical safety fuses have to be replaced, use only fuses of the same type and rating.

Explosion Hazard

Do not operate or use this system in the presence of flammable anaesthetics or gases as it could lead to explosion.

Handling the Delicate Transducers

The transducers are delicate parts of the ultrasound system and should be treated with care. The delicate crystals in the transducer may crack and render the transducer unusable if the transducer is subject to shock. Room temperature liquids should be used for cleaning. Never use alcohol or mineral oil as an acoustic coupling agent as transducer or cable damage could occur.

Symbols used.

The following symbols are used on the FETATRACK 360 and are in accordance with IEC60601-1 : 1990.

Where they are associated with the connection of external equipment, that equipment in all cases **must meet** the relevant safety standard.

- Alternating Current

- Power On (Connection to the mains)

- Power Off (Disconnection from the mains)

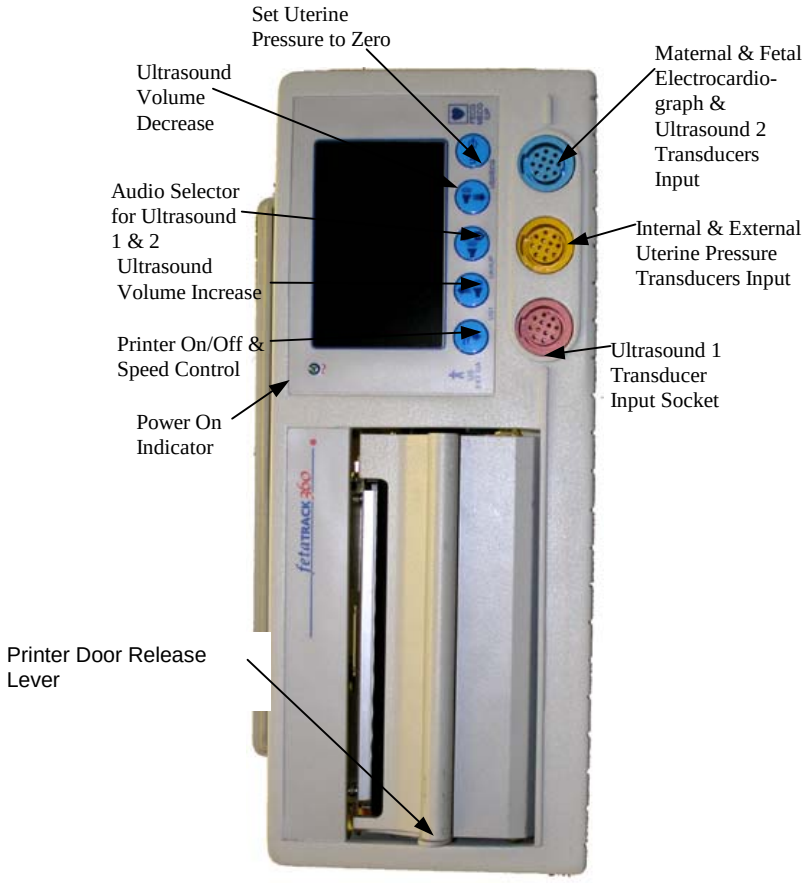
- Type B Equipment

- Type BF Equipment

- Attention: consult accompanying documents

FETATRACK 360 front panel controls

The front panel keyboard area contains 6 keys used to control the operation of the unit, they are all indicated by Icons to aid language variations.


Set Uterine Pressure to Zero
Ultrasound Volume Decrease
Maternal & Fetal Electrocardio-graph & Ultrasound 2 Transducers Input
Audio Selector for Ultrasound 1 & 2
Ultrasound Volume Increase
Internal & External Uterine Pressure Transducers Input
Printer On/Off & Speed Control
Ultrasound 1 Transducer Input Socket
Power On Indicator
Printer Door Release Lever

Recorder On/Off and speed change

This key is used to control the operation of the recorder. Press once and the chart recorder will start, each consecutive short press will change the speed . Press and hold the key will stop the recording.

Volume Up

This key is used to increase the audio volume level, or in configuration mode to change user options.

Volume Down

This key is used to decrease the audio volume level.

US1 / US2 Transducer Select

Pressing this key changes the selected probe from US1 to US2 for volume output. This is used when the unit is in Twins mode with two US channels for listening to either of the two fetus.

Toco Zero

This key zeros the toco trace to the selected baseline.

Inputs / outputs and displays

Power on Indication

The green LED associated with the above symbol when bright indicates that power is connected to the apparatus.

RS232 output

This output is for the connection of an external computer for data transfer. The maximum voltage that can be applied to this output is 15VDC.

WARNING: Any external equipment connected to this output must meet the relevant safety standard.

Remote Event Marker

Connection of an external event mark switch allows the patient to indicate events by printing an arrow in the gap between the FHR and UA traces. The maximum voltage that can be applied to this output is 15VDC.

Probe Connections US1, US2, Toco

This is for the connection of approved Doppler and toco transducers. The maximum voltage that can be applied to this output is 15VDC.

Internal Layout

With the top cover removed and the front panel facing you, there is one large printed circuit board fixed to the base of the monitor this contains all the power supply circuits, all the control circuits and the Ultrasound, Toco and digital signal processing circuits.

In addition, there is the optional ECG card and Maternal Pulse Oximetry card.

Mounted on the front panel are the input connectors, LCD graphic display module and user interface keyboard.

Dismantling Procedure

Note: Before disassembling the unit, unplug the transducers, accessories cable (if present), and the power cord from the instrument.

To remove the Top Cover, remove the four screws around the edge on the bottom of the unit. The Top Cover can now be removed taking care to disconnect the earth bonding cable connecting the lid to the base.

The display module can be removed from the front panel by careful removal of the 4 screws holding the part in place.

Circuit Description

Power supply Circuit

The 240/110 VAC supply enters the FETATRACK 360 via an IEC double fused inlet / mains filter and switch and is fed to a torroidal transformer. The input supply voltage is stepped down to a nominal 24 VAC, connected to the board via J17 and is then bridge rectified by D24, smoothed by C147.

Regulated Supplies

The voltage regulators (U31 and U32) are fed from D24 at a voltage of around 36VDC. These oscillate at approximately 120 KHz transferring pulses of current into L10 and L11 respectively. The output of inductor is fed back directly into U31 (32) which at pin 1 is reference comparator and alters the pulses transferred into the inductor to obtain a stable voltage output. The output of U31 is 5V DC and U32 is 15V DC. Pulses of current in to inductor L11 are also taken into a charge pump to provide a stable –15V DC after regulator transistor Q14.

D25 also supplies current to the printhead and motor drive circuits via Q13 and U33 which provides a stable 24V DC .

Printhead and Motor Drive Supply

The printhead requires pulses of current equalling 10A but for a very small amount of time, therefore current is taken from the charge built up in C155 rather than expecting the power supply to supply the pulses. Q13 is connected as an ON/OFF switch to the printhead voltage circuits to act as protection. An explanation of its operation can be found in section PRINTER INTERFACE. When ON, current is fed to U33 connected as a variable voltage regulator with a range of +18 v to +24 v where VR1 adjusts this voltage.

Ultrasound Circuit

Overview

The ultrasound circuit is built up of four discrete sections.
These are:

Oscillator and Transmitter amplifier
Receiver and Detector
Audio amplifier
Signal pre-processing.

These operate to produce a continuous wave of 2MHz ultrasound which is passed to the transmitter crystal in the transducer. The signal is then reflected from moving interfaces within the body to the receiver crystal in the transducer, amplified and then detected so the audio Doppler shift of that moving interface can be heard audibly or passed via signal pre-processing to the A/D converter for rate calculation.

The circuit board has the option of two ultrasound circuits which operated at different frequencies, the operation of each is identical as so only one is described here. The current nominal frequencies are 2.1MHz for US1 and 1.8MHz for US2.

(US2 shown in brackets)

Transmitter and Receiver PSU

Power suppley for the Ultrasound Circuits is derived from the stable +15VDC and further regulated through U35 (U36) to provide an ultrastable 10VDC

Oscillator and Transmitter output.

L4 (L8) forms an oscillator with Q4 (Q9)and its associated capacitors producing a sine wave drive at the required frequency. This is fed via a high current output driver Q1 (Q6) and output transformer L1 (L6).

Receiver and Detector

The reflected Ultrasound signal is fed via a resonant transformer L1 (L5) to the gate of Q3 (Q8), the drain of this FET connects to the source of Q2 (Q7) to form a cascode amplifier From the drain of Q2 (Q7) the amplitude complex of the received signal is detected by passing the signal through chopping FET detector Q5 (Q10) the gate of which is driven from the transmitter signal . The raw low frequency heart complex is then amplified and filtered by U1 (U4) where its associated components form a bandpass filter amplifier with a bandwidth of 150Hz to 1KHz. This signal is passed to the audio section and the signal pre-processing .

Audio Amplifier

The audio signal then passes to a input selector U29 where the user can select via the front panel which Ultrasound channel will pass to the audio circuits and then to digital gain control U28 and buffer amplifier U37, where the volume setting is determined by the microprocessor subject to the user setting. From here the gain controlled signal is fed to the input of a monolithic power amplifier U30 and from here to the loudspeaker at J18.

Signal Pre-processing

The detected audio complex is fed to U6 a bandpass amplifier where the filter characteristics are arranged to reject signals below 150Hz and above 1KHz , and the output is taken do a digital AGC U3 (U7). The amplitude stabilised signal is then amplified and full wave rectified by U2 (U5) . This full wave rectified signal is then buffered and smoothed by an active filter. The smoothing is achieved by the low pass active filter having a 3db at 5Hz hence giving the average value of the audio complex. This signal is then passed to the A/D converter stage of the cpu U18 for further digital signal processing .

Toco Circuit

A stabilised ±5V from U23 provides the toco transducer excitation at J16. The output of the Toco transducer is fed via a high gain amplifier U23 to a low pass filter U23 for signal smoothing into the A/D converter U27 further digital signal processing U18.
Toco Zero is automatically adjusted by D/A converter U24 providing an offset voltage into the input of U23 .

Microprocessor Circuit

The microprocessor circuit is arranged around twin MC68HC812 a fast second generation central processing unit (CPU). When power is applied to the circuit a monitor circuit waits for the power rail to become stable and then 100 ms later takes the reset on the CPU high (logic 1) to 5 v. This starts the CPU working by reading the bytes at the very top of its memory map from the EPROM (ROM). This shows the CPU the start position in ROM from which to start executing. This sets up all the peripheral devices, which includes an interrupt timer, starts the system clock which consists of interrupts from the cpu to the watchdog ic at the rate of 1 every millisecond. As all functions are time dependant nothing starts without this clock. The CPU now reads all the preset variables from the battery protected RAM within the real time clock. The battery source is a lithium 3.6 v cell with a nominal life of 10 years.

After the CPU has loaded the variables it rums a system check for any internal problems which are reported on the system display.

Selection of the individual devices is controlled by cpu internal the chip select circuits.

Most analogue signals eventually require digital signal processing for display, chart recording or digital transmission, the signals are presented to CPU, where an internal 8 bit A/D converter with an 8 way multiplexed input converts the signals to digital form. The converter accepts unipolar signals of 0 - 5 v..

The CPU with the display and keyboard circuit using on chip peripheral interface , as well as detecting selection of ultrasound and the presence of an Event keypress.

Printer Interface

A proportion of the micro-circuit is dedicated to printer interface and control, the primary interface circuit contains timers, serial drivers and peripheral drivers. The principal of operation of the printhead and motor drive circuit is as follows :

Data is decoded by the software into bit positions within the allowable area of the printhead . This data is then passed in serial form with a clock signal into the printheads serial buffer. The data is latched by a pulse from the cpu via CMOS buffer, this gives added protection in the case of device failure. Data is then burnt onto the printhead by strobes 1 to 4 from the cpu which last less than 1 mS .

Under normal conditions with the printer OFF there is no supply connected to the printhead or chart motor. Only when printing is requested does the cpu turn on the 24VDC supply.

The cpu also drives the chart recorder stepper motor via the high current microstep interface.

Data Storage (optional)

Full resolution patient data is stored on the optional data file when fitted to the unit. The file can store in excess of 48 hours of data that can be subdivided into 16 separate patient files.
The data can be recalled to strip chart recorder or to UltraTrace fetal PC software. The Data file card is fitted to the serial 2 channel of the controller card.

Maternal SpO2 (optional)

A maternal SpO2 card plugs into S1 and communicated to the microprocessor circuits via an internal serial bus. The systems display will change to accommodate the additional board and reflect Maternal heart rate , maternal pulse and Oxygen saturation level. The SpO2 figure sensor connects to the back of the FT360 via J3, 15 pin multipurpose connection.

Fetal SpO2 (optional)

The Nonin fetalsat fetal pulse oximeter connects directly to multipurpose connector J3, 15 pin. The FT360 will automatically identify the presence of the Fetalsat and the display will change to reflect the fetal oxygen saturation level and pulse. The fetal oxygen saturation level will also be printed in the toco trace of the strip chart recorder.

Fetal ECG Circuits (optional)

“Internal” signals FECG and IUP are routed from the front panel to an optional card plugged into to the main PCB at right angles via connector P1.

The input circuits are fully electrically isolated by a isolation PSU block mounted on the PCB and the output signal are optically coupled. There is no ground connection between the input circuits and the electrical circuits in the rest of the monitor.

ECG signals are fed from the sensors to the input of a high gain differential amplifier U14 / U15 and instrumentation amplifier U11. The generated error signal is fed via U12 back to the LEG reference to improve noise performance.

The output of U11 is routed to the un-isolated circuits through analogue opto coupler driven by U9. Large DC offsets are corrected by feeding back the output of U11 to the input through U10.

The un-isolated signal is notch filtered at 50Hz or 60Hz using IC U5 and associated circuits and then gain controlled from the microprocessor U18 using U1. The following circuits U2,U3, U17 form a filter network with a cut off frequency of 80Hz.

Test Procedures

Introduction

The following sections details tests to ensure that the FETATRACK 360 is operating within specification. These tests may be performed in whole or part, however, if any repairs are carried out to the power supply circuits then it is recommended that the whole test/calibration procedure is undertaken.

The test procedures may be performed without removal of the circuit board from the unit.

Performance Checks

The following procedure is intended to provide a means of determining the functional status of the unit. It should be included as part of a preventive maintenance plan and should be performed on a regular basis.

1) Plug the monitor line cord into a grounded receptacle of suitable line voltage and frequency as indicated on the rear panel of the FETATRACK 360 .

2) Turn monitor on. The green front panel LED will illuminate.

3) The display will first show the system selftest followed by the software revision This indicates the instrument is switched on and awaiting inputs.

4) Load chart paper to recorder (for assistance see operating instructions) ensure paper is correctly aligned.

5) Depress printer on/off and recorder will run at either 1,2 or 3 cm/min dependent on the user preset value.

Ultrasound

6) Connect ultrasound transducer to the pink or blue US sockets on the front panel and increase volume to maximum.

7) Place transducer in palm of hand and gently stroke the back of the hand at a constant rate of about 2 times a second.

8) Check audio volume is present, digital display will display the simulated rate (approx 120) and correspond with the data being printed on the chart paper.

UA / Toco / Contractions

9) Connect the toco transducer to the yellow UA input socket on the front panel and press UA zero to set the baseline (baseline resets to value 1 -> 20 as selected in set up procedure).

10) Apply pressure onto the centre of transducer and check that the toco trace on chart recording increases to 100 + 10%. Remove load and trace will return to baseline.

Event Marker

11) Connect the hand held remote event marker to the external mark socket. Depress the button once and note that a half arrow is printed on the bottom of FHR recording.

Setting up the monitors

The mode of operation of the monitor is programmable through the front panel to give a certain amount of customisation. The programming mode is entered by pressing and holding UA Zero while turning the monitor ON.

Details of the user programmable options are at the beginning of this manual.

Basic Troubleshooting:

Unit turns on but LCD module displays one line of squares, all black, a stipe or no data

This is usually a failure of the LCD module but can be a failure of the main CPU. The best option is to see if the monitor reacts to button presses, if it does then the module or its wiring is faulty otherwise suspect the CPU. The cause of module failure is unknown other than checking the wiring from the CPU board to the module. CPU failure can be due to corrosion of the EPROM socket, removing the device and re-inserting cures 99% of all failures of this type, otherwise the board requires detailed fault finding or replacement.

Ultrasound transducer does not detect a fetus

This can be poor placement of the transducer, not enough or incorrect coupling gel or a faulty transducer or ultrasound circuit.
Place a small amount of gel on the face of the transducer and hold the transducer in the palm of your hand. Stroke the back of your hand twice a second. The stroking should be audible and the monitor should register around 120bpm.
If no sound or low sound suspect the probe or ultrasound circuits. The most likely cause of failure is the transducer.

A different rate is shown on the display when compared to the chart paper

This is unlikely. The two systems are digitally linked and the effect is likely to be a user misconception.

A different rate is shown on the display than I can count by ear

The monitor displays the average of the last 3 beats, even so, it is very much more accurate that the user counting beats over the last 30 seconds.

Recorder door does not close

This can be caused by the right hand door catch being misaligned. When the door closure is down this catch must close over the nylon roller sleeve on the right hand side of the recorder. Adjust mechanism so this closes correctly.

Printing quality is poor (sections too light or missing)

Use of non standard chart paper damages the printer hear and creates a build up of thermal ink on the head. Clean the head with a cotton bud and cleaning spirit.
Print head misalignment or non closure of printer door can also cause this problem.
Adjustment normally fixes the problem. In extreme cases the print head may also have failed.

Printing quality is poor due to FHR missing

This is normally due to the user not applying the transducer correctly or not using the correct coupling gel, but can also be due to a failing ultrasound transducer. Ensure the user locates the fetus correctly and check the trace for signs of large fetal movements that can indicate the fetus has moved out of the transducers beam. If the toco transducer is connected you may also be able to see maternal adjustment that can cause a intermittent connection to the skin.
Reapplication of the transducer usually solves these problems.

Toco transducer does not work

This can be poor placement of the transducer, or a faulty transducer or toco circuit.
Place a small amount of pressure on the face of the transducer and the display should respond to this pressure. Check system zeroing by unplugging the transducer and re-connecting, the monitor will respond by setting the transducer to zero.

Parts lists

The following section contains parts list and drawings for the FETATRACK 360.

100-0117-00		
Fetatrack 360 Main Assy		
Part Number	**Description**	**Quantity Per**
Printer Parts		
100-1111-00	Base Plate F360D106-101	1
100-1112-00	Top Plate F360D107-101	1
100-1113-00	Side Plate F360D108-101	2
100-1114-00	Spring Clamp F360D109-101	1
100-1115-00	Spring F360D110-101	1
100-1116-00	Foot F360D111-101	2
100-1117-00	Lever Assy F360D112-301 (includes plate & bush)	1
100-1118-00	Lever Knob F360D112-401	1
100-1119-00	Cam F360D113-101	1
100-1120-00	Cam Bush F360D114-101	1
100-1121-00	Peel Bar F360D115-101	1
100-1122-00	Pivot Bar F360D116-101	1
100-1123-00	Motor Pulley F360D117-101	1
100-1124-00	Roller Pulley F360D118-101	1
100-1125-00	Large Pulley F360D119-101	1
100-1126-00	Small Pulley F360D120-101	1
100-1108-00	Door Extrusion F360 (Machined) Drg 0113	1
100-1127-00	Roller F360 F360D121-101	1
100-1128-00	Paper Tray F360	1
100-1129-00	Paper Out Sensor Assy F360	1
900-0076-00	Rubbing Strip F360	2
900-0047-00	Printhead Thermal QP128	1
600-0007-00	Cable Assy Printhead Connector Drg FM1D125	1
900-0021-00	Stepper Motor	1
900-0077-00	Short Belt 71MXL F360	1
900-0078-00	Long Belt 122MXL F360	1
900-0079-00	Plastic Snap Rivet F360	2
900-0080-00	Nylon Sleeve ??x12 F360	2
900-0081-00	PTFE Bush 1.00 thick F360	8
961-0049-00	Washer Nylon Flat M5 F360	3
961-0050-00	Screw Set M3x?? F360	4
961-0051-00	Screw Set M3x?? F360	7
961-0052-00	Cap Heads M4x10 St/Steel F360	1
961-0019-00	Nut M4 Full St/Steel A2	2
500-0011-00	Housing Molex 4 Way 22-01-2045	2

100-0117-00		
Fetatrack 360 Main Asssy		
Part Number	**Description**	**Quantity Per**
500-0012-00	Crimps Molex	7
961-0016-00	Screw M3x6 Csk Hd Pozi St/Steel A2	1
chassis assy		
100-1047-00	Base F360D102-101	1
100-1046-00	Cover F360D103-101	1
100-1045-00	Connector Plate F360D100-101	1
100-1044-00	Printer Bracket F360D101-101	1
900-0027-00	Feet Heavy Duty ABS	4
100-0097-00	Fetatrack 360 PCB assy	1
100-1091-00	Moulding Front Fetatrack 360	1
100-1092-00	Moulding Rear Fetatrack 360	1
100-1083-00	Label Set Fetetrack 360 Keypad with Green LED	1
900-0026-00	Filter Mains Inlet (Traceable Product)	1
800-0016-00	Transformer Mains (Traceable Product)	1
800-0015-00	Fuse 500mA Antisurge 250V Glass T 20mm	2
800-0017-00	Loudspeaker 3in 10W	1
800-0025-00	LCD 200x128 STN Green/Yellow Green Backlight	1
500-0056-00	Header IDC 20W	2
600-0023-00	Ribbon Cable 20W (uon = mtrs)	1
500-0030-00	Housing Molex 2 Way 22-01-2025	1
500-0011-00	Housing Molex 4 Way 22-01-2045	4
500-0017-00	Housing Molex 6 Way 22-01-2065	2
500-0015-00	Housing Molex 8 Way 22-01-2085	1
500-0057-00	Nicolay Socket 12W Pink	1
500-0058-00	Nicolay Socket 12W Yellow	1
500-0059-00	Nicolay Socket 12W Blue	1
500-0060-00	Nicolay Female Contacts	22
600-0022-00	Wire Eqpt Type 44 24AWG White (uom=mtrs)	1
900-0082-00	EMI Absorber (Seward 3007-0500)	4
961-0028-00	Spade Terminal 0.25 RT Angle	2
961-0003-00	Screw M3x6 Pan Hd Pozi St/Steel A2	1
961-0015-00	Screw M3x8 Pan Hd Pozi St/Steel A2	1
961-0004-00	Screw M3x16 Csk Hd Pozi St/Steel A2	6
900-0064-00	Connector Crimp Terminal 4.8x0.8mm	4
500-0040-00	Header IDC 20 Way Straight	0
223-0683-00	Resistor MF 68K 1% 0805	1

100-0075-00		
Fetatrack 21T/360 Ultrasound 1 Transducer Pink (M/1/0059)		
Part Number	**Description**	**Quantity**
		Per
100-1094-00	Faceplate Seward ultrasound 0210-3239	1
800-0027-00	Crystal Set 2.1Mhz Pz27 disc od=25mm Seward	1
800-0031-00	PCB Ultrasound F310 Transducer iss 6	1
600-0019-01	Cable 360 Transducer US1/US2 Seward Grey 2m leng	1
100-1130-00	Transducer Body White Seward 0210-3232	1
500-0064-00	Nicolay Contact Male 5630-4012	6
500-0066-00	Nicolay Plug Free 12W Pink	1
900-0039-00	Grommet Extended Black Rubber Small	1
100-1141-00	Label FHR US1/US2 F360 Transducer	1
100-1140-00	Label Serial Number 33 Series F360 Transducer	1
900-0008-00	Cable Tie	1

100-0081-00		
Fetatrack 210/260/360 Ultrasound 2 Transducer Blue (0215-		
Part Number	**Description**	**Quantity**
		Per
100-1094-00	Faceplate Seward ultrasound 0210-3239	1
800-0027-00	Crystal Set 2.1Mhz Pz27 disc od=25mm Seward	1
800-0031-00	PCB Ultrasound F310 Transducer iss 6	1
600-0019-01	Cable 360 Transducer US1/US2 Seward Grey 2m leng	1
100-1130-00	Transducer Body White Seward 0210-3232	1
500-0064-00	Nicolay Contact Male 5630-4012	6
500-0067-00	Nicolay Plug Free 12W Blue	1
900-0039-00	Grommet Extended Black Rubber Small	1
100-1141-00	Label FHR US1/US2 F360 Transducer	1
100-1140-00	Label Serial Number 33 Series F360 Transducer	1
900-0008-00	Cable Tie	1

100-0079-00		
AFM210/260/360 External Toco Transducer Yellow		
Part Number	**Description**	**Quantity**
		Per
100-1072-00	Probe Cable Clamp PD120	1
100-1134-00	Toco Spring Diaphragm F360 Transducer	1
100-1087-00	Membrane PVC Seward To-Co Transducer	1
100-1130-00	Transducer Body White Seward 0210-3232	1
100-1131-00	Faceplate Toco Seward F360	1
100-1132-00	Toco Button F360 Transducer	1
100-1133-00	Toco Clamp Ring F360 Transducer	1
800-0032-00	PCB Toco F360 Transducer iss	1
961-0053-00	Toco Button Screw F360 Transducer	1
100-1135-00	Toco Adjustment Plate F360 Transducer	1
600-0024-01	Cable 360 Toco Transducer Seward Grey 2m len	1
100-1136-00	Label Serial Number 34 Series F360 Transducer	1
100-1137-00	Toco Beam Assy F360 Transducer	1
210-0240-00	Resistor MFR4 240R 1%	2
500-0063-00	Nicolay Plug Free 12W Yellow 5620-4012	1
500-0064-00	Nicolay Contact Male 5630-4012	5
961-0054-00	Screw M2x6 Pan Hd Pozi St/Steel A2	3
961-0055-00	Screw M2x5 Csk Hd Pozi St/Steel A2	3
961-0056-00	Screw M2x6 Csk Hd Pozi St/Steel A2	2
900-0039-00	Grommet Extended Black Rubber Small	1
900-0084-00	Terminal Pin Single Sided	3
431-0007-00	IC Op-Amp OP07CD	1
100-1138-00	Label UA F360 Toco Transducer	1

100-0097-00			
ft 360 PCB Assy			
Part Number	**Ref**	**Description**	**Quantity Per**
311-0109-00	C147	Cap Electrolytic 10000uF 35V Snap In Panasonic TSUP Series	1
311-0108-00	C144	Cap Electrolytic 1000uF 35V Panasonic FC Series	1
311-0277-00	C158,163	Cap Electrolytic 270uF/330uF 16V Panasonic FA Series	2
311-0227-00	C90,103,150,154	Cap Electrolytic 220uF 35V BCC 136 60221	4
311-0127-00	C149,152	Cap Electrolytic 120uF 50V Panasonic FC Series	2
311-0106-00	C38,82,91,135	Cap Electrolytic Min 100uf 16V 5mm Radial	4
311-0225-00	C159,166	Cap Electrolytic 22uF 100V Panasonic FC Series	2
323-0105-00	C37,81,126,170	Cap Cer SM Y5V 1uf 16V +20-80% 0805	4
323-0104-00	C1,2,6,17,18,20,22,23,24,25,28,29,30,31,35,40,41,44,45,49,62,64,65,68,69,70,71,72,73,74,75,79,84,85,88,89,92,93,94,97,99,101,102,105,106,108,110,111,112,113,114,120,121,122,123,124,125,127,128,129,130,131,132,133,134,136,137,138,139,141,143,145,1	Cap Cer SM X7R 100nf 50V 20% 0805	82
323-0473-00	C43,87	Cap Cer SM X7R 47nf 50V 20% 0805	2
323-0333-00	C95,116	Cap Cer SM X7R 33nf 50V 20% 0805	2
323-0103-00	C8,13,19,21,32,34,36,39,52,57,61,63,76,78,80,83,104,107,153,156.	Cap Cer SM X7R 10nf 50V 20% 0805	20
323-0472-00	C109	Cap Cer SM X7R 4.7nf 50V 20% 0805	1
323-0332-00	C96,117	Cap Cer SM X7R 3.3nf 50V 20% 0805	2
323-0102-00	C4,12,16,33,42,47,56,60,77,86,140	Cap Cer SM COG 1.0nf 50V 20% 0805	11
323-0681-00	C7,10,50,54	Cap Cer SM COG 680pf 50V 20% 0805	4
323-0331-00	C48	Cap Cer SM COG 330pf 50V 20% 0805	1
323-0221-00	C3,11,46,55	Cap Cer SM COG 220pf 50V 20% 0805	4
323-0101-00	C5,51	Cap Cer SM COG 100pf 50V 20% 0805	2
323-0470-00	C9	Cap Cer SM COG 47pf 50V 20% 0805	1
323-0220-00	C98,100,118,119	Cap Cer SM COG 22pf 50V 20% 0805	4
323-0151-00	C53	Cap Cer SM COG 150pf 50V 20% 0805	1
320-0106-01	C167 (NOT 10Volt)	Cap Tant SM 10uf 20V 20% Case B	1
320-0105-00	C115,142,155,161 (NOT 20Volt)	Cap Tant SM 1uf 35V 20% Case A	4
320-0474-00	C15,27,59,67	Cap Tant SM 0.47uf 25V 20% Case A	4
431-7404-00	U12	IC Digital SM 74HCT04 SO14	1
432-0001-00	U11	IC Digital SM 74HCT541	1
434-0001-00	U13,18	IC Digital SM 68HC812	2
433-0001-00	U14,20	IC Digital SM (32x8) Eprom 27C256	2
432-0002-00	U16,21	IC Digital SM 62256 (43256)	2
432-0003-00	U15	IC Digital SM 3777	1

100-0097-00			
ft 360 PCB Assy			
Part Number	**Ref**	**Description**	**Quantity Per**
432-0004-00	U17	IC Digital SM 39612	1
440-1076-00	U31,32	IC SM LT1076CQ	2
411-0338-00	U33	IC TH TO220 LM338T	1
436-1305-00	U10	IC SM DS1305E	1
431-0202-00	U8	IC Digital SM MAX202 SO16	1
431-0549-00	U24	IC Digital SM MAX549ACUA or AEUA	1
431-1243-00	U27	IC Digital SM MAX1243 SO8	1
431-0001-00	U9,19	IC Analogue SM 33064Z	2
431-0211-00	U29	IC Analogue SM DG211BDY	1
431-0324-00	U1,2,4,5,6,23	IC Analogue SM LM324 SO14	6
411-2614-00	U30	IC Analog Power Amp SIL9MPF TDA2614/N1	1
431-9103-00	U3,7,28	IC Analogue SM X9C103S SO8	3
431-0336-00	U25	IC Analogue SM LM336M-2.5	1
436-0131-00	U22	IC SRAM 1Kx8 CY7C155	1
431-0072-00	U26,34	IC Analogue SM TL072CD SO8 (Tube = 75)	2
431-1000-00	U35,36	IC Regulator ZSR1000 10V 200MA SOT223	2
533-0032-00	U14,20	Socket IC SM 32W PLCC	2
420-1004-00	D25,26,27	Diode SM 10BQ040 SMB	3
420-0016-00	D1,2,5,6,8,9,10,11,14,15,17,18,19,20,21,2	Diode SM BAS16 SOT23	16
420-8451-00	D7,16,23,29	Diode Zenner SM BZX84C5V1 SOT23	4
420-8462-00		Diode Zenner SM BZX84C6V2 SOT23	0
411-0004-00	D24	Diode Bridge 4 Pin SIL GBU4A	1
420-8410-00	D30	Diode Zenner SM BZX84C10 SOT23	1
420-0805-00	Q13	Transistor SM RFD8P05SM TO252AA (Tube = 75)	1
420-0848-00	Q1,6,11,12	Transistor SM BC848B SOT23	4
420-0001-00	Q14	Transistor SM FZT751 SOT223	1
420-4416-00	Q2,3,4,5,7,8,9,10	Transistor SM 4416 SOT23	8
820-0002-00	X1	Crystal 32.768Hz 85SMX	1
820-0003-00	X2,3	Crystal SM 12MHz 86SMX	2
224-0010-00	R116,118,120,121	Resistor MF 1R 5% 1206	4
223-0010-00	R117,166	Resistor MF 1R 1% 0805	2
223-0100-00	R2,6,44,49,174	Resistor MF 10R 1% 0805	5
224-0220-00	R171,172	Resistor MF 22R 1% 1206	2

100-0097-00			
ft 360 PCB Assy			
Part Number	**Ref**	**Description**	**Quantity Per**
223-0101-00	R1,9,35,39,42,43,52,78,82,105,107,134,135,160,182	Resistor MF 100R 1% 0805	15
224-0221-00	R85,86,87,89	Resistor MF 220R 1% 1206	4
223-0471-00	R88,144	Resistor MF 470R 1% 0805	2
223-0102-00	R13,17,40,56,60,83,119,122,124,125,148,159,167,170,184,187,188,189	Resistor MF 1K 1% 0805	18
223-0122-00	R163	Resistor MF 1K2 1% 0805	1
223-0152-00	R8,51	Resistor MF 1K5 1% 0805	2
223-0222-00	R11,19,26,30,54,62,69,73,181,185	Resistor MF 2K2 1% 0805	10
223-0272-00	R176,179,180,190	Resistor MF 2K7 1% 0805	4
223-0472-00	R37,80,186	Resistor MF 4K7 1% 0805	3
223-0103-00	R5,20,21,22,23,24,38,41,47,48,63,64,65,66,67,81,84,90,91,92,93,94,95,96,97,98,99,100,101,102,103,104,108,109,110,111,113,114,126,127,128,130,131,133,136,137,138,139,141,145,147,150,151,153,154,164,173,	Resistor MF 10K 1% 0805	57
223-0123-00	R123,183	Resistor MF 12K 1% 0805	2
223-0153-00	R161,168	Resistor MF 15K 1% 0805	2
223-0163-00	R112,129,146	Resistor MF 16K 1% 0805	3
223-0223-00	R29,72,178	Resistor MF 22K 1% 0805	3
223-0273-00	R7,50,165	Resistor MF 27K 1% 0805	3
223-0333-00	R142,155	Resistor MF 33K 1% 0805	2
223-0363-00	R25,68	Resistor MF 36K 1% 0805	2
223-0473-00	R33,76,140,162	Resistor MF 47K 1% 0805	4
223-0683-00	R12,16,31,55,59,74	Resistor MF 68K 1% 0805	6
223-0104-00	R3,4,10,15,27,32,36,45,46,53,58,70,75,79,106,156,175,177	Resistor MF 100K 1% 0805	18
223-0184-00	R18,28,61,71	Resistor MF 180K 1% 0805	4
223-0224-00	R143,158	Resistor MF 220K 1% 0805	2
223-0334-00	R34,77,157,169	Resistor MF 330K 1% 0805	4
223-0106-00	R115,132	Resistor MF 10M 2% 0805	2
220-0202-00	VR2	Resistor Variable Multi-Turn SM 2K 3224W	1
220-0204-00	VR1	Resistor Variable Multi-Turn SM 200K 3224W	1
311-0226-00	L9	Inductor 22uH Panasonic ELC	1
320-0001-00	L10,11	Inductor	2
311-0001-00	L12	Inductor Torroid 100uH 10mm Dia (50uH Alt)	1
311-0838-00	L1,5	Inductor Fixed Toco 0838	2

100-0097-00			
ft 360 PCB Assy			
Part Number	**Ref**	**Description**	**Quantity Per**
311-0842-00	L3,7	Inductor Fixed Toco 0842	2
311-0841-00	L4,8	Inductor Fixed Toco 0841	2
311-0876-00	L2,6	Inductor Fixed Toco 0876	2
500-0023-00	J18	Header Straight 2 Way 22-27-2021	1
500-0024-00	J11,12,17	Header Straight 4 Way 22-27-2041	3
500-0025-00	J1,5,16	Header Straight 6 Way 22-27-2061	3
500-0026-00	J2,6	Header Straight 8 Way 22-27-2081	2
500-0028-00	J7	Header Straight 15 Way 22-27-2151	1
500-0029-00	J3	Connector Socket RS232C D 9 way	1
500-0052-00	J10	Sterio Jack Socket	1
500-0065-00	S1	Socket 8w DIL	1
500-0039-00	P1	Conn DIN41612 32 Way a	1
500-0038-00	J8	Header Box 20 Way 2.54 Milligrid	1
961-0047-00		Spacer M3 Hex 10mm	1
900-0029-00		Heatsink Ultratec PFM1S2	1
961-0032-00		Insulating Kit TO220 Silicone	1
600-0010-00		Wire Black 24AWG UL1061 (300m Reel) UOM = Mtrs	0.12
961-0027-00		Eyelet Connector 3mm	1
961-0015-00		Screw M3x8 Pan Hd Pozi St/Steel A2	2
961-0003-00		Screw M3x6 Pan Hd Pozi St/Steel A2	2
961-0018-00		Washer M3 Plain St/Steel A2	2
961-0006-00		Washer M3 Internal Shakeproof St/Steel A2	2
961-0005-00		Nut M3 Full St/Steel A2	4
900-0030-00	B1 (Fit On Test)	Battery Lithium 1/2AA 3.6v	1
800-0028-00		FETA360 R2	1

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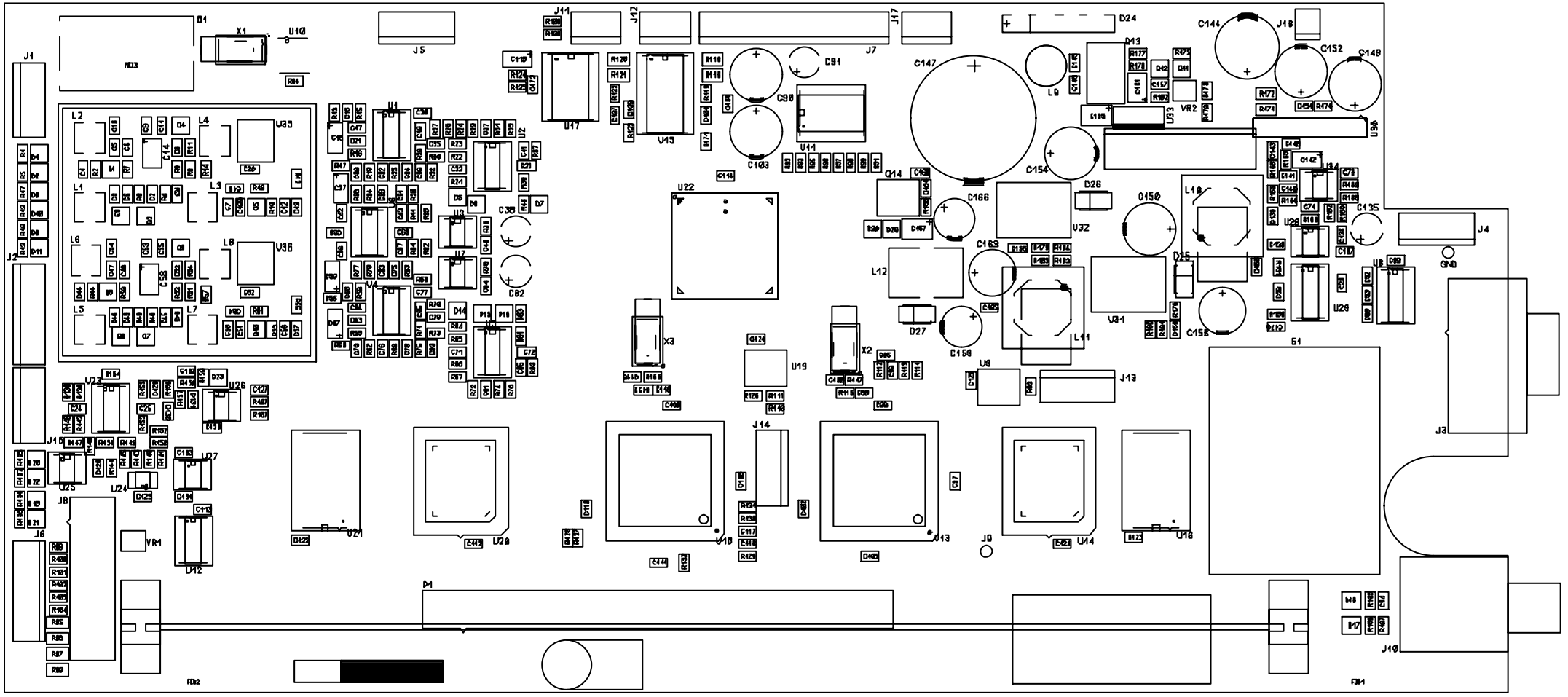
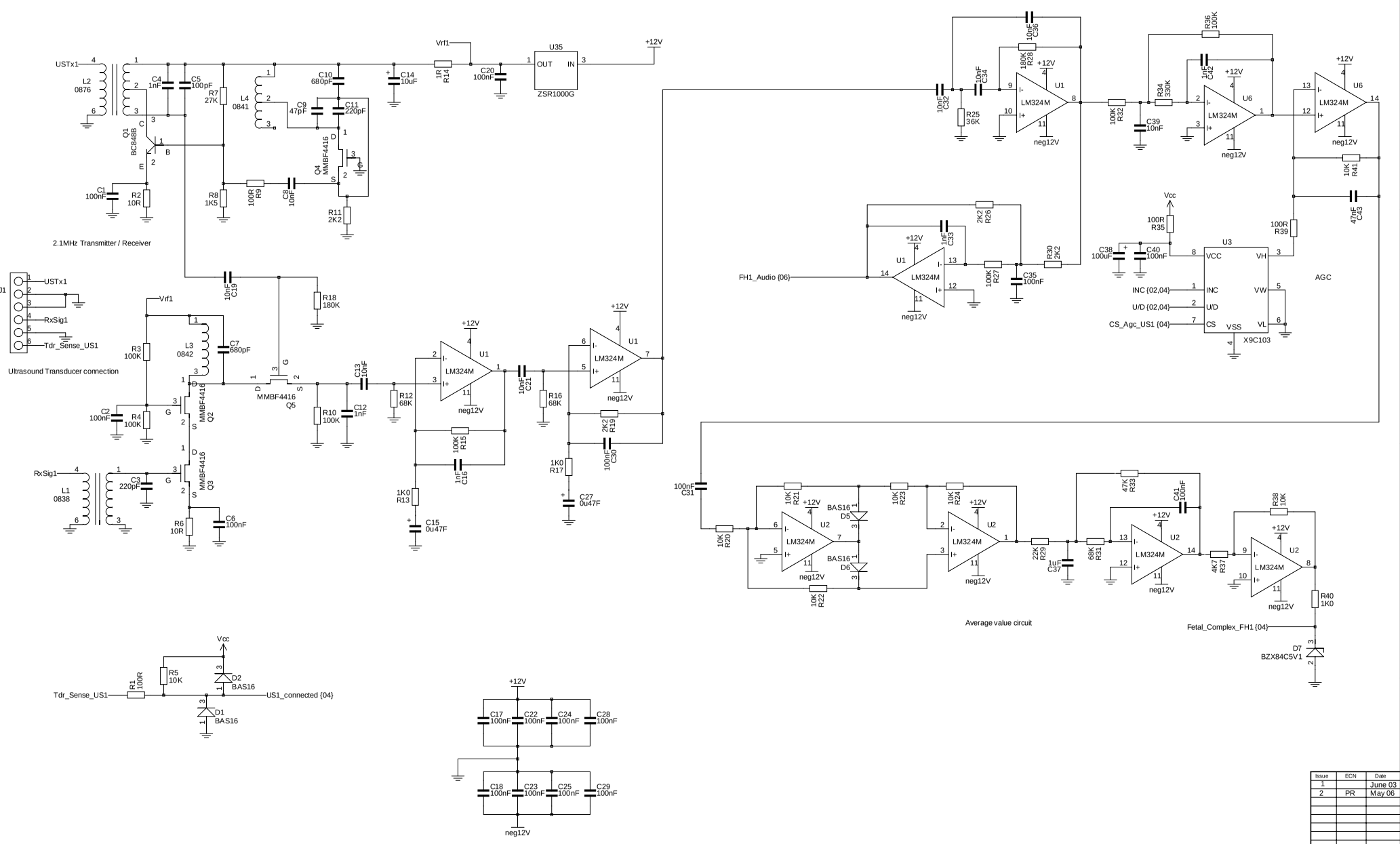


ULTRASOUND TECHNOLOGIES LTD.
FETA360 REV.3 JUNE 2006
COMPONENT OVERLAY



Issue	ECN	Date
1		June 03
2	PR	May 06

Ultrasound Technologies Ltd
Lodge Way
Portskewett, Caldicot
South Wales, NP26 5PS, UK

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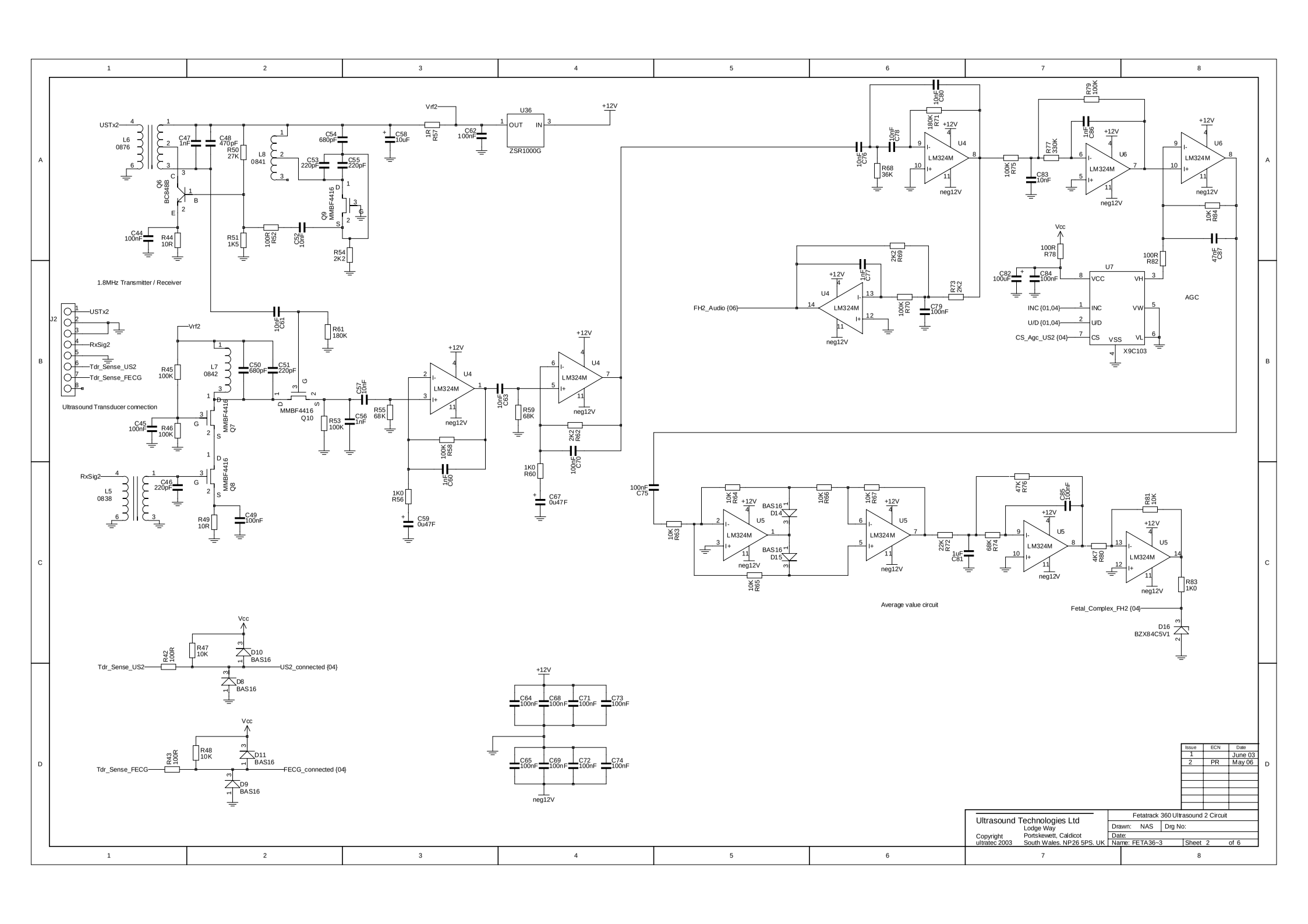
Fetatrack 360 Ultrasound 1 Circuit

Drawn: NAS | Drg No:

Date:

Name: FETA36~3 | Sheet 1 of 6


1.8MHz Transmitter / Receiver
Ultrasound Transducer connection
Average value circuit
AGC
X9C103
ZSR1000G
BC848B
MMBF4416
LM324M
BAS16
BZX84C5V1
Tdr_Sense_US2
Tdr_Sense_FECG
US2_connected {04}
FECG_connected {04}
FH2_Audio {06}
Fetal_Complex_FH2 {04}
INC {01,04}
U/D {01,04}
CS_Agc_US2 {04}
Vrf2
Vcc
neg12V
+12V
USTx2
RxSig2
Tdr_Sense_US2
Tdr_Sense_FECG
Issue
ECN
Date
June 03
May 06
Ultrasound Technologies Ltd
Lodge Way
Portskewett, Caldicot
South Wales, NP26 5PS, UK
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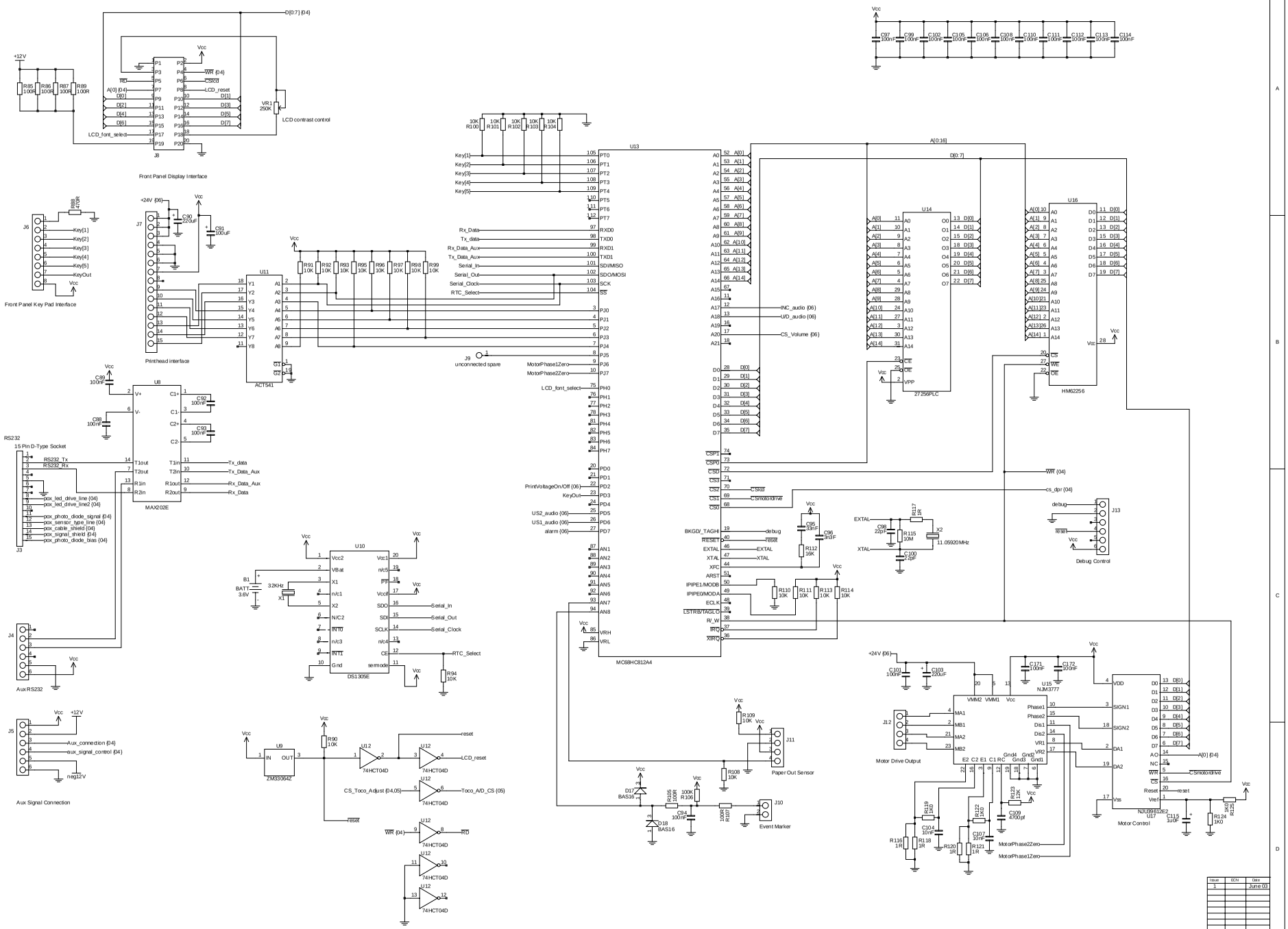
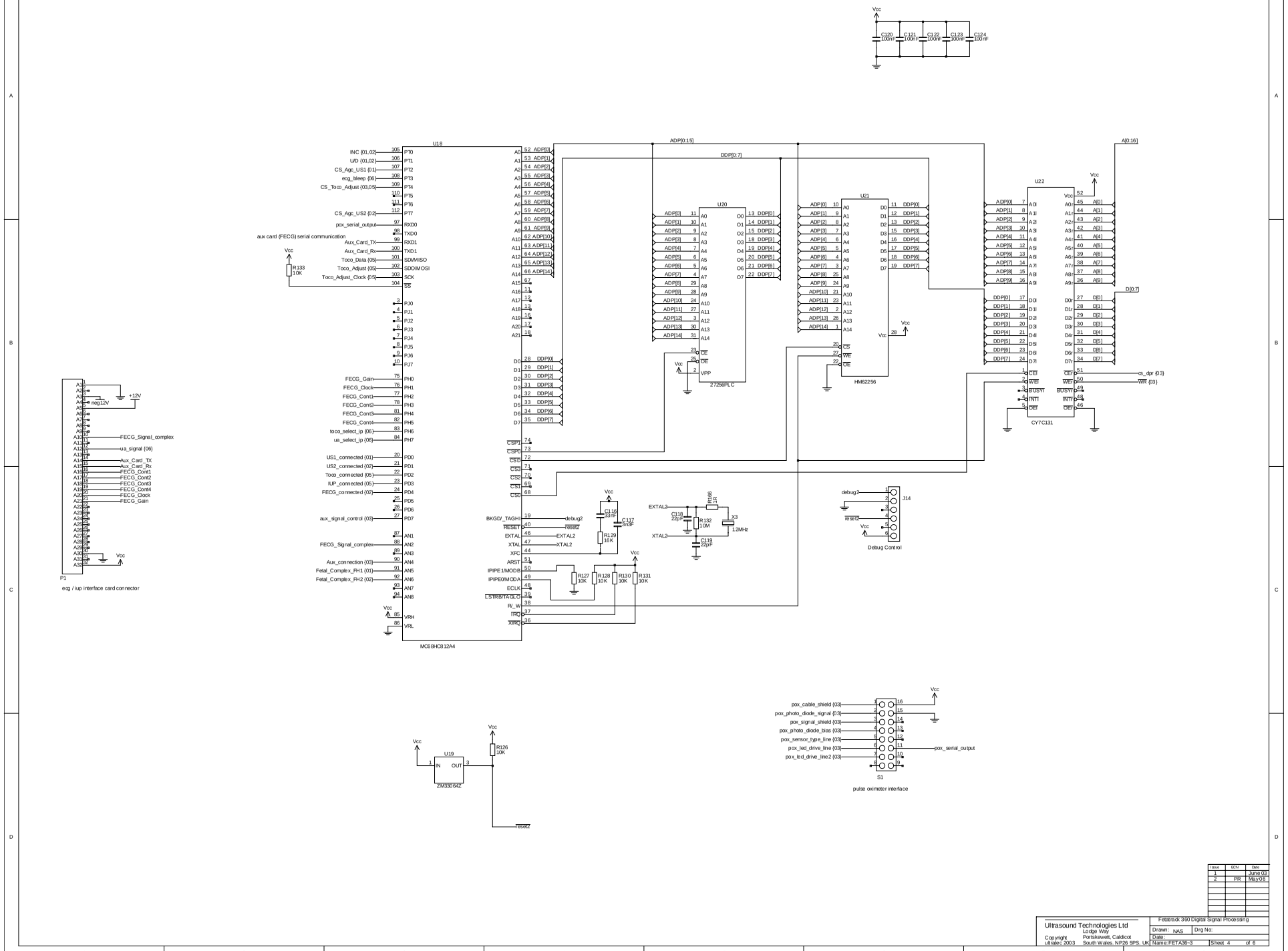
Fetatrack 360 Ultrasound 2 Circuit
Drawn: NAS
Drg No:
Date:
Name: FETA36~3
Sheet 2 of 6


Front Panel Display Interface
LCD contrast control
LCD_font_select
Front Panel Key Pad Interface
Printhead interface
ACT541
unconnected spare
MC68HC812A4
27256PLC
HM62256
RS232
15 Pin D-Type Socket
MAX202E
Aux RS232
DS1305E
Aux Signal Connection
ZM330642
Paper Out Sensor
Event Marker
Motor Drive Output
NJM3777
NJU9912E2
Motor Control
Debug Control
11.05920MHz
Ultrasound Technologies Ltd
Lodge Way
Portskewett, Caldicot
South Wales. NP26 5PS. UK
Digital Printer Control and user interface
Drawn:
Drg No:
Date:
Name: FETA36-3
Sheet 3 of 6
Issue
ECN
Date
June 03



Issue	ECN	Date
1		June 03
2	PR	May 06

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Lodge Way
Portskewett, Caldicot
South Wales. NP26 5PS. UK

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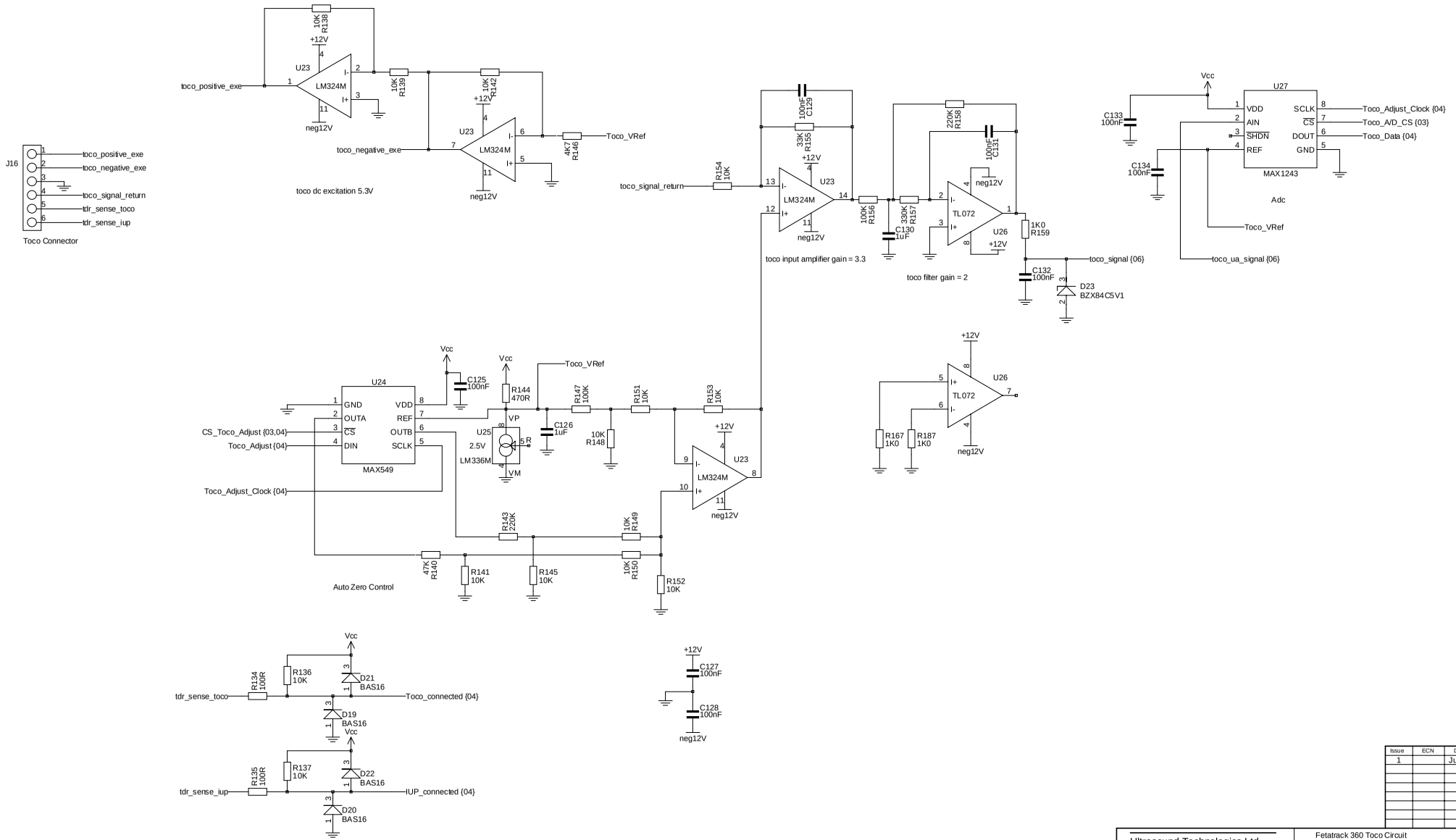
Fetatrack 360 Digital Signal Processing

Drawn: NAS | Drg No:

Date:

Name: FETA36-3 | Sheet 4 of 6



Issue	ECN	Date
1		June 03

Ultrasound Technologies Ltd
Lodge Way
Portskewett, Caldicot
South Wales, NP26 5PS, UK

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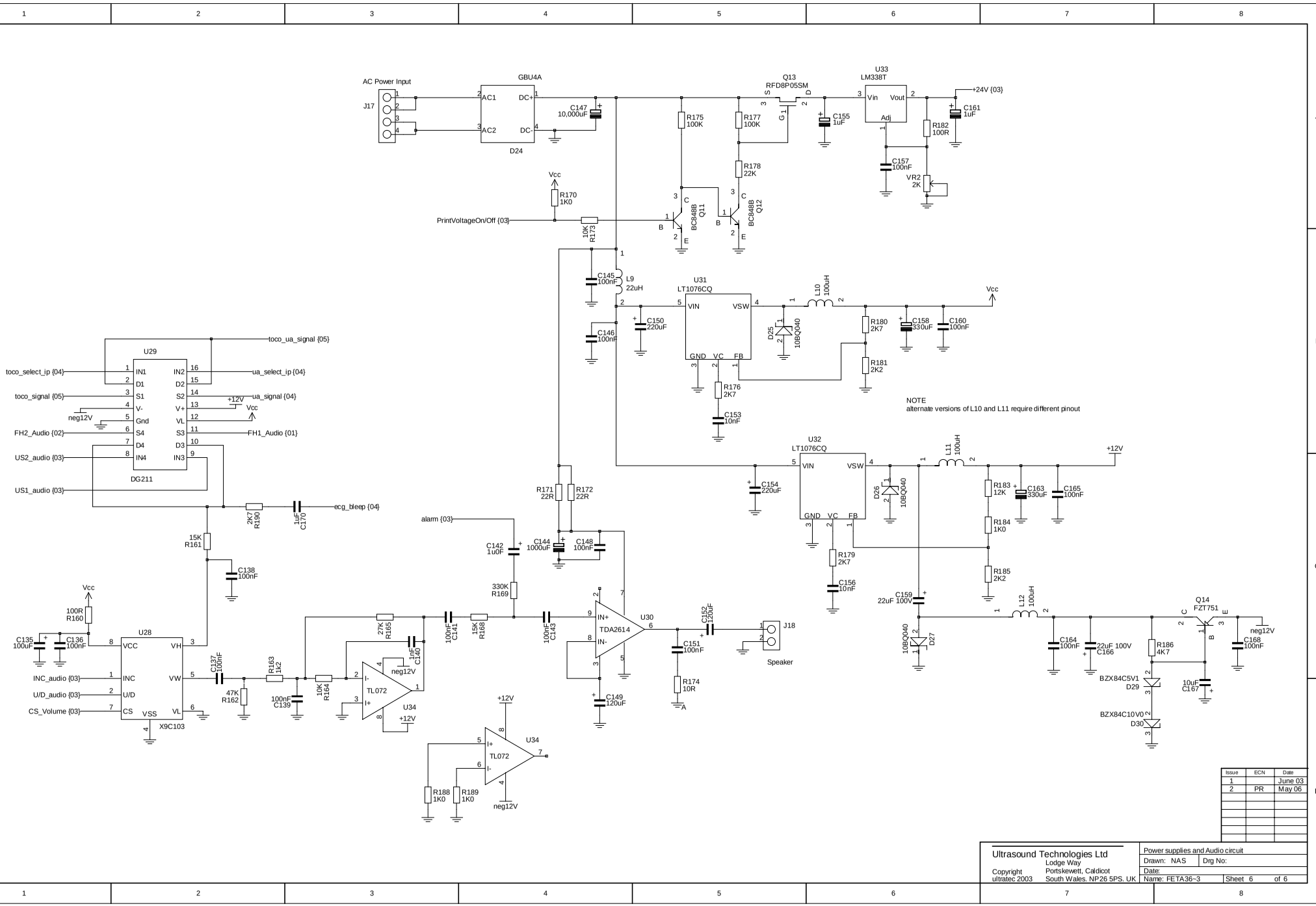
Fetatrack 360 Toco Circuit

Drawn: NAS | Drg No:

Date:

Name: FETA36~3 | Sheet 5 of 6



Issue	ECN	Date
1		June 03
2	PR	May 06

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Portskewett, Caldicot
South Wales, NP26 5PS, UK

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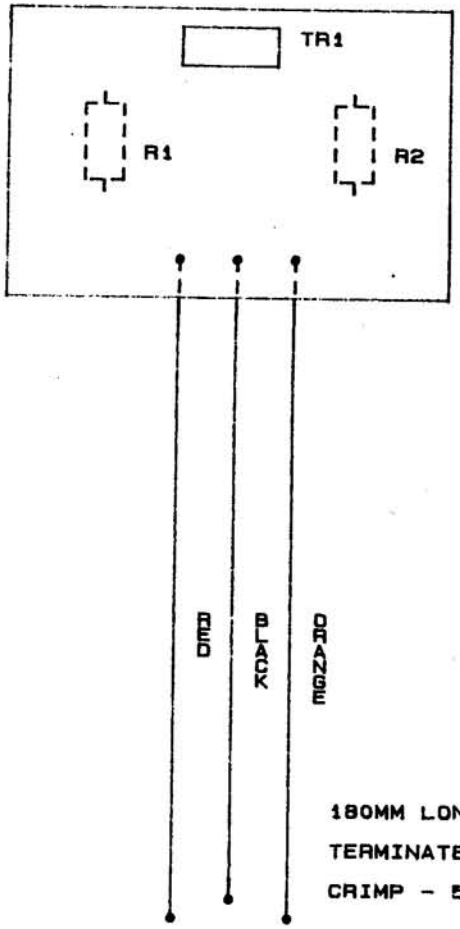
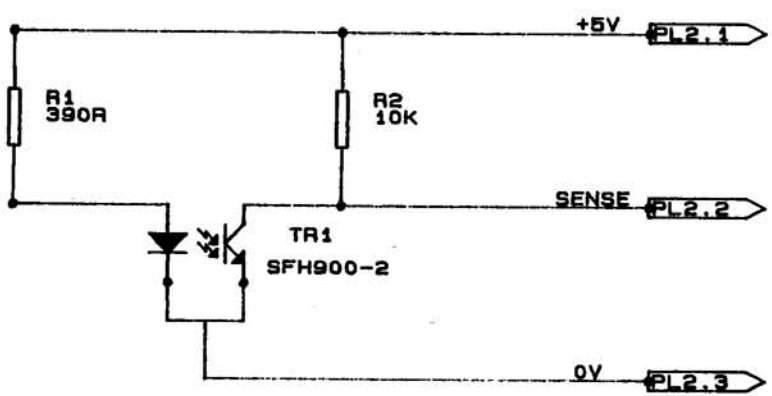
Power supplies and Audio circuit

Drawn: NAS | Drg No:

Date:

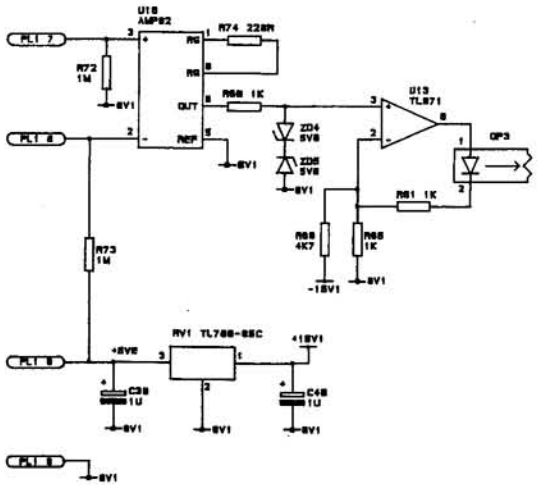
Name: FETA36~3 | Sheet 6 of 6





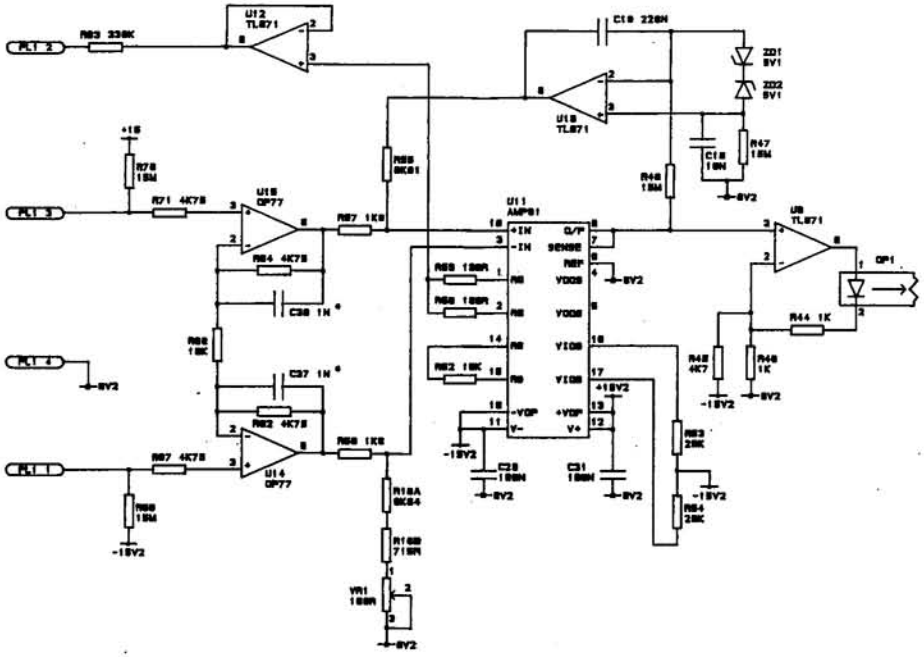
NOTE: TR1 MOUNTED ON UNDERSIDE OF PCB.

SEWARD MEDICAL SYSTEMS LTD.		
Title: PAPER OUT SENSOR		
Size: A	Document Number: 0211-8205	REV: 1
Date: June 9, 1994	Sheet 1 of 1	



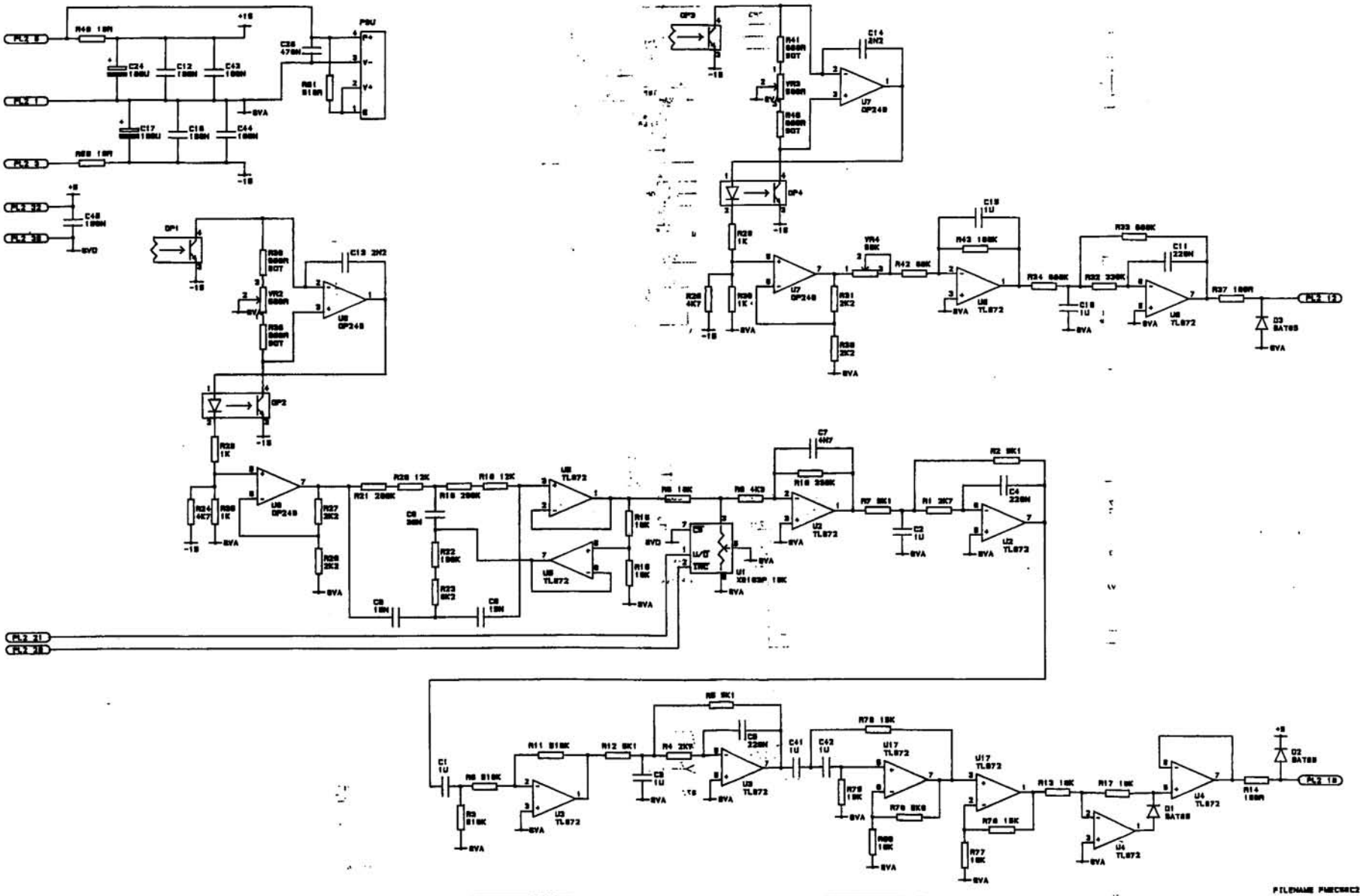
FILENAME PWC0881

DRAWN CREST DATE 15/04/94 CHECKED DATE 19.05.94	COPYRIGHT SEWARD MEDICAL SYSTEMS LTD 1992 LAST COMPONENT USED:-	NOTES:-	ISSUE	DATE	ECN No	DESCRIPTION	ISSUE	DATE	DIS NO.	DESCRIPTION	CIRCUIT DIAGRAM FOR:- IUP INPUT CIRCUIT (ISOLATED) SEWARD MEDICAL SYSTEMS LTD.	DRAWING NUMBER 0260-0203 SH. 2 OF 3
			5	05/01/92		ISSUE 5 PCB						
			6	05/05/92	259							
			7	15/05/92	288							
			8	15/10/92	323							
			9	15/04/94	418	ISS.9 PCB:DRG. AMENDS						



FILENAME PMEC88A1

DRAWN CREST DATE 15/04/94	COPYRIGHT SEWARD MEDICAL SYSTEMS LTD 1992	NOTES:- * C37,38 NOT FITTED	ISSUE	DATE	ECN NO.	DESCRIPTION	ISSUE	DATE	DIS NO.	DESCRIPTION	CIRCUIT DIAGRAM FOR:-	DRAWING NUMBER
	LAST COMPONENT USED:-		9	08/01/92		ISSUE 9 PCB					ECG INPUT CIRCUIT (ISOLATED)	0260-8203
CHECKED DATE 19/05/94			8	08/08/92	288							SH. 1 OF 3
			7	15/08/92	288							
			6	15/10/92	323							
			5	15/04/94	418	189.6 PCB: DRG. AMENDS					SEWARD MEDICAL SYSTEMS LTD.	



FILENAME PWCB#C2

DRAWN	COPYRIGHT	NOTES:-
CREST	SEWARD MEDICAL SYSTEMS LTD. 1992	
DATE 15/04/94	LAST COMPONENT USED:-	
CHECKED		
DATE 19.7.94		

ISSUE	DATE	ECN No	DESCRIPTION	ISSUE	DATE	ECN NO.	DESCRIPTION
5	08/01/92		ISSUE 5 PCB	11	18/7/94	441	R43 TO 68K
6	08/05/92	258					
7	15/05/92	288					
8	15/10/92	323					
9	16/10/92	306					
10	08/04/94	418	ISS.6 PCB: DRG. AMENDS				

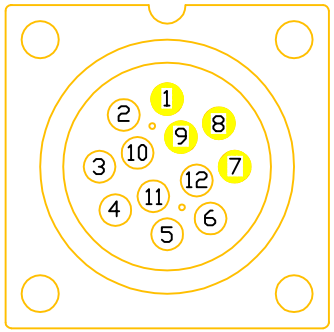
CIRCUIT DIAGRAM FOR:-
ECG/IUP PROCESSING (NON-ISOLATED)

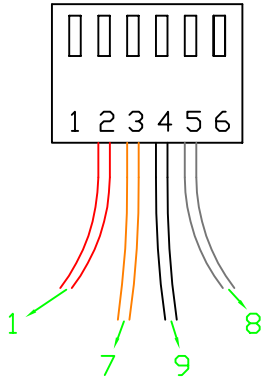
DRAWING NUMBER
0260-8203
SH. 3 OF 3

SEWARD MEDICAL SYSTEMS LTD.

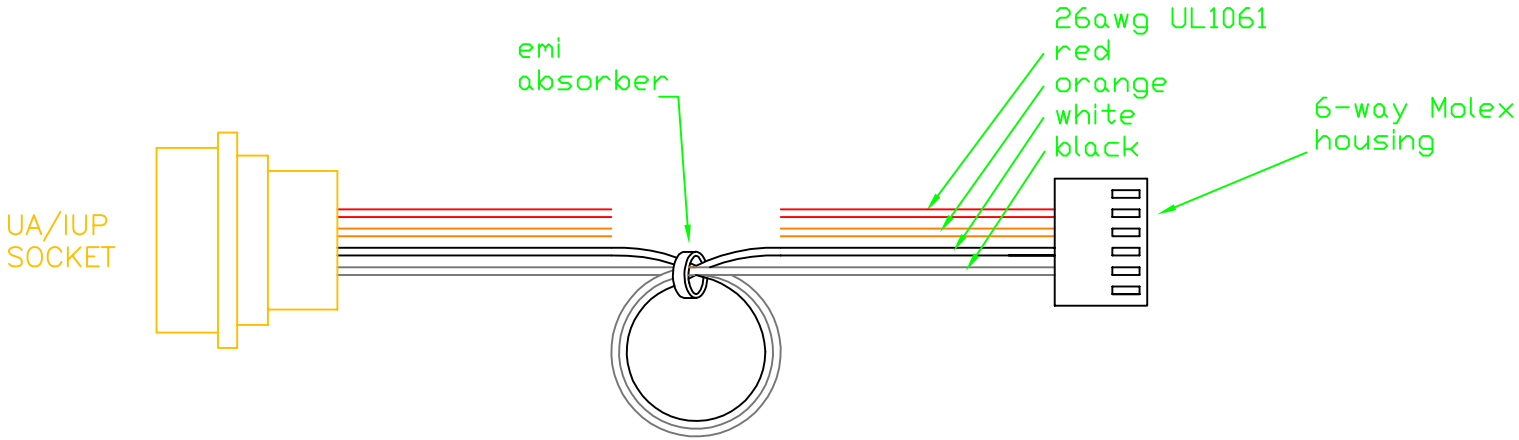
All wires 210mm long.

REAR VIEW





6W MOLEX	WIRE	YELLOW NICOLAY
1	N/C	3
2	Red	4
3	Orange	2
4	White	5
5	Black	11
6	N/C	



NOTE
All wires to 6W Molex looped through emi absorber.

ISSUE	DATE	DRAWN	CHECK	A.N.NO.
1	01/11/06	k nancollis		

MATERIAL:	STANDARD TOLERANCES		DRAWN	CHECK	APPROVED
	0	±1	k nancollis		
FINISH:	0.0	±0.5			
	0.00	±0.2	3rd ANGLE PROJECTION		
	0.000	±0.1	DO NOT SCALE PRINT		
	ANGULAR				

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TITLE:
FETATRACK 360
(UA)/IUP INPUT SOCKET
WIRING YELLOW

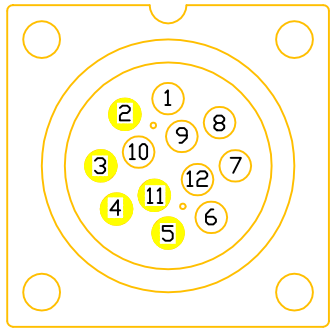
SCALE:	DIMENSIONS:	USED ON:
		FETA 360

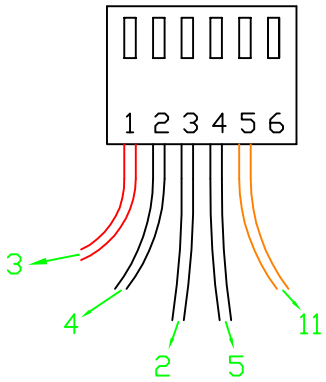
DRAWING No.
XXXXXXXXX

SHEET
OF

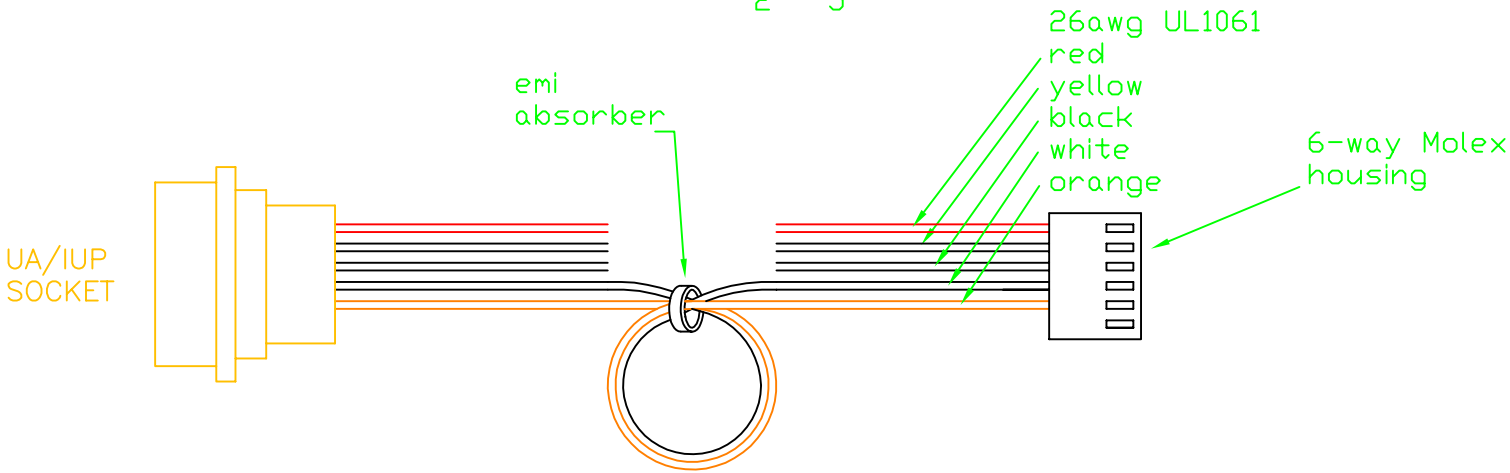
All wires 210mm long.

REAR VIEW





6W MOLEX	WIRE	YELLOW NICOLAY
1	Red	3
2	Yellow	4
3	Black	2
4	White	5
5	Orange	11
6		



NOTE
All wires to 6W Molex looped through emi absorber.

ISSUE	DATE	DRAWN	CHECK	A.N.NO.
1	01/11/06	k nancollis		

MATERIAL:	STANDARD TOLERANCES		DRAWN	CHECK	APPROVED
	0	±1	k nancollis		
FINISH:	0.0	±0.5			
	0.00	±0.2	3rd ANGLE PROJECTION		
	0.000	±0.1	DO NOT SCALE PRINT		
	ANGULAR				

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TITLE:
FETATRACK 360
UA/(IUP) INPUT SOCKET
WIRING YELLOW

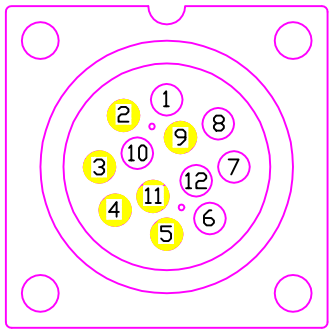
SCALE:	DIMENSIONS:	USED ON:
		FETA 360

DRAWING No.
XXXXXXXXXX

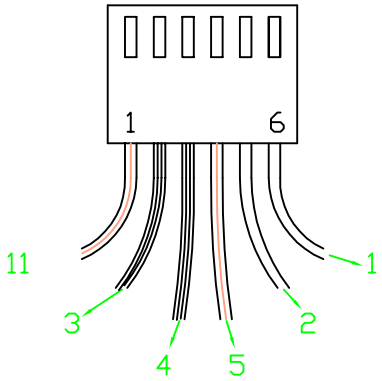
SHEET
OF

All wires 210mm long
Co-ax = 44A1111-24-9-9 : Strip ends 15mm
Singles = 26awg UL1061

REAR VIEW

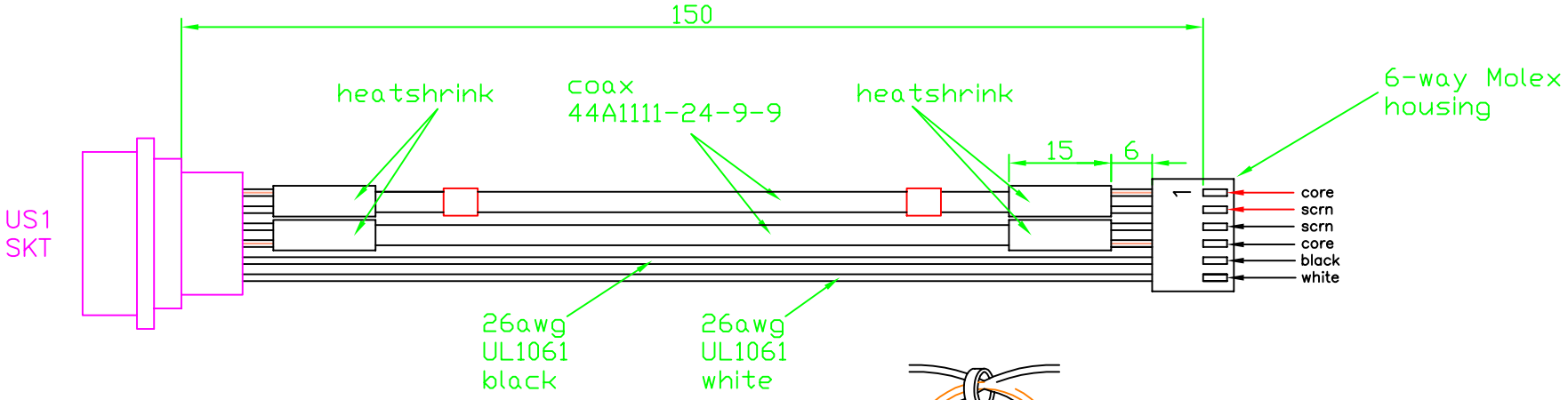


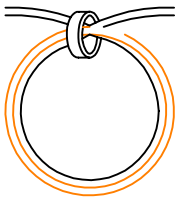
US1



6W MOLEX	WIRE	PINK NICOLAY
1	Tx Sig	11
2	Tx Scrn	3
3	Rx Scrn	4
4	Rx Sig	5
5	Black	2
6	White	9

210 IF EMI ABSORBER FITTED - WIRES LOOPED THROUGH





NOTE
All wires to 6W Molex looped through
emi absorber.

ISSUE	DATE	DRAWN	CHECK	A.N.NO.
1	01/11/06	k nancollis		

MATERIAL:	STANDARD TOLERANCES		DRAWN	CHECK	APPROVED
	0	±1	k nancollis		
FINISH:	0.0	±0.5			
	0.00	±0.2	3rd ANGLE PROJECTION		
	0.000	±0.1	DO NOT SCALE PRINT		
	ANGULAR				

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TITLE:
FETATRACK 360
US1 INPUT SOCKET WIRING
(PINK)

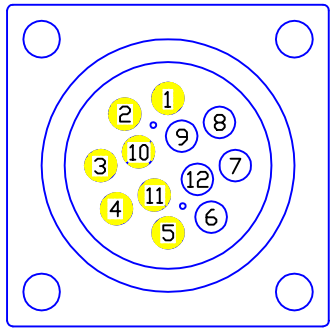
SCALE:	DIMENSIONS:	USED ON:
		FETA 360

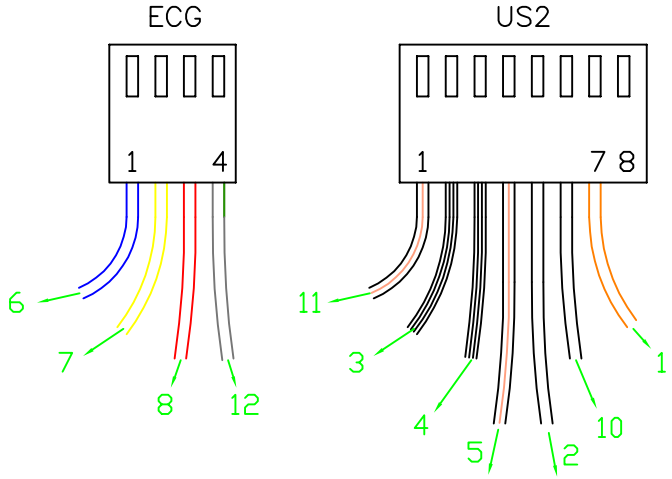
DRAWING No.
XXXXXXXXXX

SHEET
OF

All wires 210mm long
Co-ax = 44A1111-24-9-9 : Strip ends 15mm
Singles = 26awg UL1061
4W cable = Farnell 378-7709

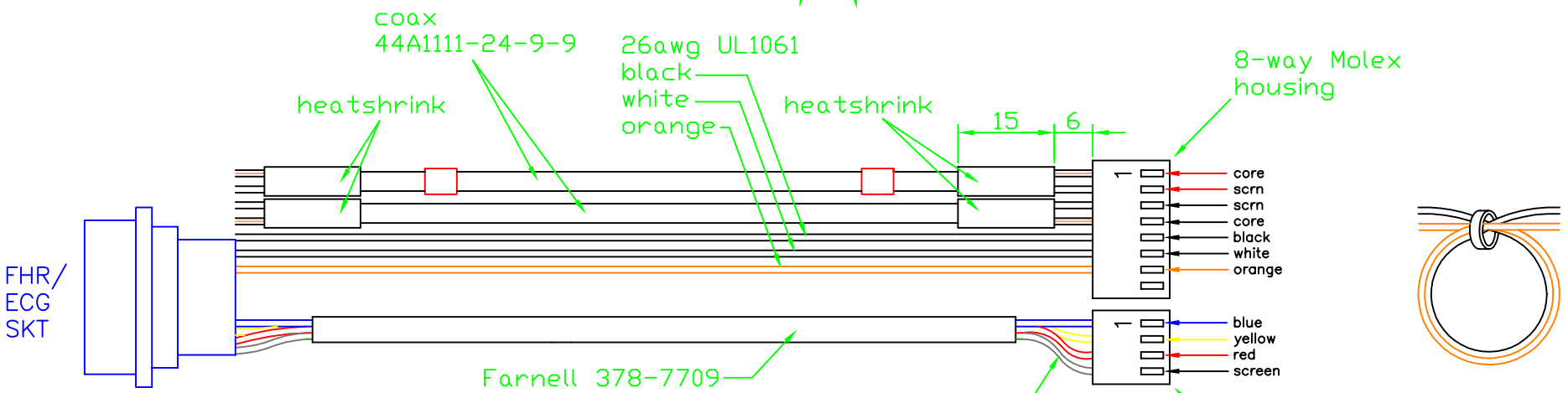
REAR VIEW





8W MOLEX	WIRE	BLUE NICOLAY
1	Tx Sig	11
2	Tx Scrn	3
3	Rx Scrn	4
4	Rx Sig	5
5	Black	2
6	White	10
7	Orange	1
8		

4W MOLEX	WIRE	BLUE NICOLAY
1	Blue	6
2	Yellow	7
3	Red	8
4	Screen	12



NOTE
All wires to 8W Molex looped through emi absorber.
Cable to 4W Molex looped through emi absorber.

ISSUE	DATE	DRAWN	CHECK	A.N.NO.
1	01/11/06	k nancollis		

MATERIAL:
FINISH:

STANDARD TOLERANCES	
0	±1
0.0	±0.5
0.00	±0.2
0.000	±0.1
ANGULAR	

DRAWN: k nancollis | CHECK | APPROVED

3rd ANGLE PROJECTION
DO NOT SCALE PRINT

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TITLE:
FETATRACK 360
US2/ECG INPUT SOCKET
WIRING (BLUE)

SCALE:
DIMENSIONS:
USED ON: FETA 360
DRAWING No. XXXXXXXXXX
SHEET
OF